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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/533,358	04/29/2005	Hiroshi Miyagi	A-494	7161

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EXAMINER	
CHOW, CHARLES CHIANG	
ART UNIT	**PAPER NUMBER**
2618	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/533,358	MIYAGI ET AL.	
	Examiner	Art Unit	
	Charles Chow	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 April 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7, 12-28* is/are pending in the application.

4a) Of the above claim(s) *8-11* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

1. This office action is for amendment dated 4/29/2007.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-2, 5, 7, 12, 18, 21, 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porambo et al. [US 5,280,638] in view of Lai [US 5,101,509].

For claim 1, Porambo et al. [Porambo] discloses a receiver [Fig. 3, a receiver with test signal to maximize sensitivity, abstract] comprising

a crystal oscillator [28, col. 3, line 51] for generating a signal required for reception operation of broadcast waves [generating fd broadcast signal for FM reception, Fig. 1 & col. 3, lines 4-5; crystal oscillator 28 for generating required alignment reference frequency for FM reception, col. 4, lines 5-17; using test signal fd for alignment, col. 3, lines 14-25],

a signal generation unit [crystal oscillator 28, switch 65, mixer 66, 43 & PLL24] for generating a test signal [fd] for an operation test by using an output signal of said crystal oscillator [generating fd broadcast signal for calibrating of the FM reception by mixing signal from 28 at 66 with the local oscillator signal from 43 & PLL 24, col. 5, 32-42; col. 5, lines 5-19];

an input unit [switch 35] for inputting the test signal [fd] to an antenna input section [switch 35 for antenna 20] when the operation test is performed [performing alignment, testing, controlled by microcontroller 25, col. 5, lines 5-19]; and

a determining unit [microcontroller 25] for determining quality [received signal strength] of reception operation based on a measured signal generated when reception operation is performed for the test signal [25 monitoring the output of A/D 69 in order to maximize the signal strength, col. 6, lines 14-18; by repeated tuning, col. 6, lines 42-58].

Porambo fails to teach the frequency divider.

Lai teaches the wherein said signal generation unit is a frequency divider for generating said test signal having a frequency included in a reception band fo the broadcast waves by dividing the output signal of said crystal oscillator,

[the test signal 42 being sent to switch 21, The test signal 42 is generated by the oscillator formed by crystal 33 & DSP 27 for the AM/FM signal band. For the AM signal band generation, DSP uses 33 & frequency divider or other frequency generator. For FM signal band is generated, the harmonics of a 10 MHz crystal oscillator being utilized, Fig. 4, col. 4, line 55 to col. 5, line 21 & col. 3, lines 35-56], to avoid the reception error caused by spurious signals [col. 2, lines 7-25]. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Porambo with Lai's frequency divider, crystal 33 & DSP 27, such that the reception error could be improved by avoiding the spurious signals.

For claims 2, 18, Porambo teaches the receiver [Fig. 3], wherein said input unit is a switch [switch 35] provided between said signal generation unit [circuitry for generating fd in Fig. 3] and said antenna input section [input or antenna 20]. Beside, Lai also teaches the switch 21 for the wherein said input unit is a switch provided between said signal generation unit [33, 27] and said antenna input section [connection from 21 to antenna 20, Fig. 4].

For claims 5, 21, Porambo teaches the receiver [Fig. 3], comprising an AM circuit [circuit path for AM demodulation 31, Fig. 3] for performing reception operation for an AM

modulation wave signal inputted to said antenna input section [performing AM reception via antenna 20, col. 3, lines 36-56], but fail to teach the dividing the output of said crystal oscillator, for a frequency in AM band.

Lai teaches the wherein a frequency of a signal obtained by dividing the output signal of said crystal oscillator is included in a frequency band of said AM modulation wave signal [the frequency divider to generate AM band signals on 42, from crystal 33 & DSP 27, col. 4, lines 55-68, Fig. 4], to avoid the reception error caused by spurious signals [col. 2, lines 7-25], as the motivation to combine Lai to Porambl.

For claims 7, 23, Porambo teaches the receiver [Fig. 3], comprising a switching control unit [microcomputer 25] for switching the reception operation of said broadcast waves [25 controls the switch 35 for broadcast reception, col. 5, line 5-19] and the determination operation by said determining unit using the measured signal [microcomputer 25 compares the signal strength, via A/D 69, for the determining operation for the maximum signal strength via the tuning voltage in the alignment process, col. 6, lines 24-58].

For claims 12, 24, Porambo teaches the receiver [Fig. 3], wherein said measured signal is an intermediate frequency, IF, signal generated by mixing said test signal and a local oscillator signal [the measuring of signal strength of the intermediate frequency IF output of IF 41 by the A/D69, Fig. 3, col. 6, lines 12-19; the IF output is generated by mixing fd with fLO at mixer 40, col. 5, lines 32-42], wherein said determining unit [microcontroller 25] detects a level of said intermediate frequency signal [col. 6, lines 12-19 & 25 compares the signal strength, for maximizing the signal strength, col. 6, lines 34-46].

3. Claims 3-4, 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porambo in view of Lai, as applied to claim 1 above, and further in view of Churchill et al. [US 3,950,750].

For claims 3, 19, Porambo teaches a receiver [Fig. 3] having a fixed frequency oscillator which is a crystal oscillator 28 [col. 3, lines 50-51]. Porambo & Lai fail to teach the fixed oscillator, is used for generating a reference signal inputted to a frequency synthesizer for generating a local oscillation signal.

Churchill et al. [Churchill] teaches the fixed oscillator, is used for generating a reference signal inputted to a frequency synthesizer for generating a local oscillation signal [the fixed 10 MHz clock 50, Fig. 2, generates reference signals f_{IF} from 58, f_D from 54, inputted to PLL 404/Fig. 4, as the frequency synthesizer, for generating test signal from 42, col. 3, line 59 to col. 4, line 8], for correcting the amplitude & phase error [abstract] via the timing from clock 50. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Porambo, Lai with Churchill's fixed 10 MHz clock signal for logic circuit A/D, in order to correct the amplitude & phase error, via the timing from the fixed clock signal 50.

For claims 4, 20, Porambo teaches the receiver [Fig. 3] having a fixed frequency oscillator which is a crystal oscillator 28 [col. 3, lines 50-51]. Porambo, Lai fail to teach the fixed oscillator is used for generating a clock signal required for operating logic circuits.

Churchill et al. [Churchill] teaches the fixed oscillator is used for generating a clock signal required for operating logic circuits [the 10 MHZ fixed frequency clock oscillator 50, Fig. 2 in block 24 for generating CP/2 to logic of A/D 36_1, 36_2 ; CP/2, TEST-top-bar, to logic 100/38 in Fig. 5/Fig. 3, col. 3, line 54-59; 50 is also used for generating test signal test generator 42, Fig. 1; to send test signal to receiver via rf switch 44 in & col. 3, line 38 to col.

4, line 8; 50], using the same reasoning in claim 3 as the motivation to combine Churchill with Porambo, Lai.

4. Claims 6, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porambo in view of Lai, as applied to claim 1 above, and further in view of Fukuda et al. [US 3,864,636].

For claims 6, 22, Porambo teaches a receiver [Fig. 3], comprising an FM circuit [circuit associated with the FM demodulation 42, Fig. 3] for performing reception operation for an FM modulation wave signal inputted to said antenna input section [FM reception of the signal from antenna 20, col. 3, lines 17-32], but fails to teach the multiplying the output of said crystal oscillator, for a frequency in FM band.

Lai teaches the DSP 27 & crystal 33 for harmonics for the FM band signals [col. 4, lines 55 to col. 5, line 20], to reduce the spurious interference [col. 2, lines 7-25] as the motivation to combine Lai to Porambo.

Porambo, Lai, fail to teach the wherein a frequency of a signal obtained by multiplying the output signal of said crystal oscillator.

Fukuda the wherein a frequency of a signal obtained by multiplying the output signal of said crystal oscillator [multiplier for generating channel test signal, Fig. 3/Fig. 5, col. 6, lines 33-45], to improve the reception quality with reduced noise interference [col. 1, line 60-68], as the motivation to combine Fukuda to Porambo & Lai.

5. Claims 13, 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porambo in view of Lai, as applied to claim 1 above, and further in view of Uda (US 5,940,744)

For claims 13, 25, Porambo teaches the receiver [Fig. 3], wherein said determining unit detects a level of the signal subjected to said detection processing [col. 6, lines 12-19 & 25

compares the signal strength, for maximizing the signal strength, col. 6, lines 34-46]. Porambo, Lai fail to teach the said measured signal is after a detection processing applied to the intermediate frequency IF signal.

Uda teaches the wherein said measured signal is a signal after a detection processing is applied to the intermediate frequency signal [the detecting, measuring, of the signal level at 112 which is after the demodulator 102, as the detection processing applied to the IF signal, col. 3, liens 18-30, Fig. 1], for correcting the error of the detected signal level via error signal from comparator 113. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Porambo, Lai with Uda's output detection 112, such that the error in the signal level could be corrected.

6. Claims 14, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porambo in view of Lai, as applied to claim 1 above, and further in view of Schetelig et al. (US 6,895,229 B2).

For claims 14, 26, Porambo discloses the receiver [Fig. 3]. Porambo, Lai fail to teach the further comprising a notifying unit.

Schetelig et al. [Schetelig] teaches a notifying unit for notifying quality of reception operation based on the determination result of said determining unit [the controller 12, as the determining unit, for providing the test result indicating serviceability on a display device, col. 8, lines 1-16], for communicating the test result to user. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Porambo, Lai with Schetelig's displaying of the test result, such the user could see the test result.

7. Claims 15, 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porambo in view of Lai, Schetelig, as applied to claim 14 above, and further in view of Isomichi et al. (US 2002/0081,999 A1).

For claims 15, 27, Porambo teaches the receiver [Fig. 3]. Schetelig teaches the displaying device for displaying test result [col. 8, lines 10-16]. Poramble, Lai, Schetelig fail to teach the displaying contents of the broadcast waves in reception is used as said notifying unit.

Isomichi et al. [Isomichi] teaches the wherein a display unit for displaying contents of the broadcast waves in reception is used as said notifying unit [the pager receiver receives radio wave 2, having message content, Fig. 1-3B, & displaying received paging, broadcast, message content on a LCD display 6, paragraph 0050], in order to notify user of the paging, broadcast, message via a display. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Porambo, Lai, Schetelig with Isomichi's displaying the content of the paging, broadcast, message, such that user could see the message via a display.

8. Claims 16, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Porambo in view of Lai, Schetelig, as applied to claim 14 above, and further in view of Korycan (US 5,950,139).

For claims 16, 28, Porambo teaches the receiver [Fig. 3]. Schetelig teaches the displaying device for displaying test result [col. 8, lines 10-16]. Poramble, Lai, Schetelig fail to teach the wherein said notifying unit is an illumination unit for notifying quality of reception operation depending on a lighting state.

Korycan teaches the wherein said notifying unit is an illumination unit for notifying quality of reception operation depending on a lighting state [the LED 110 for notifying user of the signal quality, Fig. 1, abstract; Fig. 2 signal quality indicator 360, as the notifying, illumination, unit, for notifying quality of reception with the lighting state, col. 2, lines 15-55], such that user could immediately, conveniently, know the received signal quality via the LED indicator. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Porambo, Lai, Schetelig with Korycan's signal quality indicator, such that user could immediately, conveniently, know the received signal quality via the LED indicator.

9. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porambo in view of Fukuda et al. [US 3,864,636].

For claim 17, Porambo teaches a receiver [Fig.3, receiver with test signal to maximize sensitivity, abstract] comprising

a crystal oscillator [28, col. 3, line 51] for generating a signal required for reception operation of broadcast waves [generating fd broadcast signal for FM reception, Fig. 1 & col. 3, lines 4-5; crystal oscillator 28 for generating required alignment reference frequency for FM reception, col. 4, lines 5-17; using test signal fd for alignment, col. 3, lines 14-25],

a signal generation unit [crystal oscillator 28, switch 65, mixer 66, 43 & PLL24] for generating a test signal [fd] for an operation test by using an output signal of said crystal oscillator [generating fd broadcast signal for calibrating of the FM reception by mixing signal from 28 at 66 with the local oscillator signal from 43 & PLL 24, col. 5, 32-42; col. 5, lines 5-19];

an input unit [switch 35] for inputting the test signal [fd] to an antenna input section [switch 35 for antenna 20] when the operation test is performed [performing alignment, testing, controlled by microcontroller 25, col. 5, lines 5-19]; and

a determining unit [microcontroller 25] for determining quality [received signal strength] of reception operation based on a measured signal generated when reception operation is performed for the test signal [25 monitoring the output of A/D 69 in order to maximize the signal strength, col. 6, lines 14-18; by repeated tuning, col. 6, lines 42-58].

Porambo fails to teach the wherein said signal generation unit is a multiplier for generating said test signal having a frequency include in a reception band of the broadcast wave by multiplying the output signal of said crystal oscillator.

Fukuda et al. [Fukuda] teaches the wherein said signal generation unit is a multiplier for generating said test signal having a frequency include in a reception band of the broadcast wave by multiplying the output signal of said crystal oscillator,

[the harmonics generator 6 & crystal reference oscillator 23 for generating broadcast reception TV channel test signals via switch 21 , to correct the sweep oscillator 1 for better reception, Fig. 3/Fig. 5, col. 6, line 33 to col. 7, line 26 & col. 2, line 63 to col. 3, line 3], to improve the reception quality with reduced noise interference [col. 1, line 60-68]. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to upgrade Porambo with Fukuda's crystal oscillator 23, harmonics generator 6, switch 21, such that the reception quality could be improved with reduced noise interference.

Response to Argument

10. Applicant's arguments with respect to claims 1-7, 12-26 have been considered but are moot in view of the new ground(s) of rejection.

Regarding applicant's amendment based on the no teaching in claim 1 for the wherein said signal generation unit is a frequency divider for generating said test signal having a frequency included in a reception band fo the broadcast waves by dividing the output signal of said crystal oscillator, &

adding new claim 17 including the features for the wherein said signal generation unit is a multiplier for generating said test signal having a frequency include in a reception band of the broadcast wave by multiplying the output signal of said crystal oscillator,

For the wherein said signal generation unit is a frequency divider for generating said test signal having a frequency included in a reception band fo the broadcast waves by dividing the output signal of said crystal oscillator,

Lai [US 5,101,509] teaches [the test signal 42 being sent to switch 21, The test signal 42 is generated by the oscillator formed by crystal 33 & DSP 27 for the AM/FM signal band. For the AM signal band generation, DSP uses 33 & frequency divider or other frequency generator. For FM signal band is generated, the harmonics of a 10 MHz crystal oscillator being utilized, Fig. 4, col. 4, line 55 to col. 5, line 21 & col. 3, lines 35-56], to avoid the reception error caused by spurious signals [col. 2, lines 7-25].

For the wherein said signal generation unit is a multiplier for generating said test signal having a frequency include in a reception band of the broadcast wave by multiplying the output signal of said crystal oscillator,

Fukuda et al. [US 3,864,636] teaches the harmonics generator 6 & crystal reference oscillator 23 for generating channel test signal via switch 21 , to correct the sweep oscillator 1 for better reception, Fig. 3/Fig. 5, col. 6, line 33 to col. 7, line 26 & col. 2, line 63 to col. 3, line 3], to improve the reception quality with reduced noise interference [col. 1, line 60-68].

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Chow whose telephone number is (571) 272-7889. The examiner can normally be reached on 8:00am-5:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR

only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Charles Chow

June 15, 2007. CC.

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